Solve the following:

1. $\frac{3}{x+1} = \frac{9}{4x+5}$

2. $\frac{4}{2x} = \frac{5}{x+6}$

Recall:

$$\frac{x}{4} + \frac{1}{2} = \frac{1}{3}$$

Solve the following:

3. $\frac{5}{x} + \frac{7}{4} = -\frac{9}{x}$

4. $1 - \frac{8}{x-5} = \frac{3}{x}$

5. $\frac{6x}{x+4} + 4 = \frac{2x+2}{x-1}$

6. $\frac{x+1}{x+6} + \frac{1}{x} = \frac{2x+1}{x+6}$

7. $\dfrac{2x}{x+5} - \dfrac{x^2-x-10}{x^2+8x+15} = \dfrac{3}{x+3}$

8. $\dfrac{2}{z+1} - \dfrac{1}{z-1} = \dfrac{-2}{z^2-1}$

9. $\dfrac{1}{p-2} = \dfrac{2p+1}{p^2+2p-8} + \dfrac{2}{p+4}$